

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the Application of:

Robert H. Moffett

CASE NO.: CH2814 US NA

SERIAL NO.: 09/898,437

GROUP ART UNIT: 1724

FILED: 07/03/2001

EXAMINER: Peter Hruskoci

FOR: Phosphorus Reduction in Aqueous Streams

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APPELLANT'S REPLY BRIEF

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Appellant submits this reply brief to respond to the examiner's Answer that raises issues necessitating appellant to reply.

The examiner cited Allgulin at column 4, lines 59-63 (Answer, page 4, full paragraph starting at line 6) to show that Allgulin suggests the addition of a flocculating agent to a solution containing the precipitate to aid in separating a flocculated precipitate from the solution.

It appears that the examiner implicitly agreed to appellant's argument, in appellant's appeal brief, that Allgulin does **not** suggest adding a flocculant to precipitate phosphorus because *the flocculant is added to aid in removal of the precipitate in the lamella, not to precipitate phosphorus*. Because the examiner agrees that Allgulin does not suggest precipitating phosphorus with a flocculant, there should not be a rejection. As such, appellant requests that all rejections over Allgulin be reversed.

Appellant, for the record, submits that Allgulin at column 4, lines 59-63, where the examiner cited, discloses:

Upon completion of the precipitation process, the solution and the precipitate present therein is passed through a pipe 18 to a flocculating tank 20, to which a suitable flocculating agent is passed through a supply pipe 19 (italics appellant's).

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To properly ascertain the meaning of the above disclosure, one needs to go back to the same column, line 37, *et seq.*, where Allgulin discloses:

The solution freed from the major part of its impurity content in the separator 15 is then pumped to a *further precipitation tank 17*. Alkali, here exemplified as NaOH, is charged to the *tank 17*, together with a precipitation agent, here exemplified as FeSO₄. The amount of alkali added to the solution is adapted so that, subsequent to adding FeSO₄, the pH of said solution lies within the range of 8.0-9.0, while the amount of sulphate added is adapted so that the ratio X in the solution lies between 10 and 15. In this way, *impurity elements can be precipitated-out* to a residual content of less than 1 mg/l solution. The majority of the precipitate formed often comprises a relatively voluminous iron-hydroxide with impurity ions such as AsO₂⁻ adsorbed thereon. Any mercury and other heavy metals present in the solution will thus be *precipitated out, together with any arsenic and phosphorous* [sic] and the iron, to leave extremely low residual contents (*italics applicant's*).

Allgulin clearly discloses that *any* phosphorus is *precipitated at tank 17*. See, e.g., the "complete precipitation" language emphasized above. There is no more phosphorus to be precipitated in tank 20. As such, Allgulin does not suggest a flocculating agent is added to precipitate phosphorus at tank 20.

The flocculant is added to aid in removal of the precipitate in the lamella, not to precipitate phosphorus. This is clearly disclosed in Allgulin. See, e.g., column 4, line 64 to column 5, line 5 where Allgulin discloses:

The thus treated solution is pumped from the flocculating tank 20 through a pipe 21 to a lamella separator 22. The flocculated precipitate is separated from the solution in the lamella separator, and is removed in the form of a sludge from the bottom of the separator 22, as indicated by the line 23, while cleansed solution is removed via an overflow pipe 24, and passed to a cloth filter 25, where the solution is cleansed still further and from which the filtered, purified solution is withdrawn and dumped.

In the last paragraph of the Answer, page 4, the examiner stated that complete precipitation of phosphorus in Allgulin fails to exclude the addition of other materials such as coagulants and flocculants. The examiner continued to state that teaching in Allgulin of adding a flocculant agent would suggest to one skilled in the art that flocculating agents of Chung et al, . . . could be added to aid in separating a flocculated precipitate.

Appellant submits that the claims on appeal is directed to, using claim 1 as an example, *inter alia*, (d) adding a flocculant to produce a flocculated mass. The claims are not directed to separating a flocculated mass. If the examiner were correct, then *any references* could be potentially prior art for rejecting the claims because it would be almost 100% certain that such references would fail to exclude the claims.

The question is, therefore, whether Allgulin *suggests*, in a positive step, *adding* a flocculant to precipitate phosphorus to produce a flocculated mass. The question is not whether Allgulin *fails to exclude* other materials such as coagulants and flocculants to precipitate phosphorus. Appellant does not see suggestion of adding a flocculant to produce a flocculated mass in Allgulin because, once phosphorus is completely precipitated, there is no more phosphorus to be precipitated.

Similarly, the examiner stated, page 5, first full paragraph, that the food processing wastes of Chung et al fail to *exclude* aqueous stream from food processing comprising phosphorus as recited in claims 2 and 17 on appeal.

Again, the proper question is whether Chung et al suggest *adding* a flocculant to produce a flocculated mass (a positive step), not whether Chung et al *fails to exclude* adding such flocculant.

Also similarly, the examiner stated in the paragraph bridging pages 5 and 6 that clays and bentonite disclosed in Chung et al *fail to exclude* anionic colloid. The question should be whether Chung et al suggests, *not fails to exclude*, anionic inorganic colloid.

Whether Chung et al discloses or suggests use of anionic colloid and cationic polyacrylamide has been thoroughly discussed in the appeal brief of this application as well as in the appeal and reply briefs of related application 10/013,406 ('406 application). Appellant's conclusion there is that Chung et al does not disclose or suggest use of anionic colloid and cationic polyacrylamide. For the interest of brevity, the discussions in the appeal and reply briefs of the '406 application are omitted herein.

In the second full paragraph on page 5 of the Answer, the examiner asserted that appellant (1) did not recite the uses of iron, aluminum, and polymers in Allgulin and Chung et al in appellant's claims on appeal and (2) has not supplied sufficient

factual evidence to support appellant's allegation. The assertion relates to appellant's argument that Chung et al is not an analogous art.

First, claim 1 specifically recites, *inter alia*, (b) adding one or more metal ions selected from the group consisting of zinc and manganese ions to the stream The only metal ions are limited to those recited in the Markush group.

Secondly, appellant cites the problem, in the present application (page 2), with which appellant was concerned to show that, under the second prong of the two-prong test of *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), Chung et al is not pertinent to the problem with which appellant was concerned.

The examiner asserted that the unexpected results in the Moffett Declaration are not commensurate with the scope of the claims on appeal. Though appellant appreciates the examiner's indication that claims 1, 5, 25 and 34 would be allowable with narrower scopes, appellant submits that the USPTO has not produced a reference showing that appellant is not entitled to the broad claims recited in the claims on appeal. Appellant also submits that reduction in COD is an inevitable consequence of removing a chemical such as phosphorus from an aqueous stream as recited in appellant's claims. As such, there is no need to recite the reduction in COD.

The examiner stated that exclusion of these steps (i.e., those disclosed in Allgulin, Chung et al, Ayukawa, and Monick et al) would have been *prima facie* obvious absence of unexpected results. Appellant has thoroughly discussed the unexpected results in the appeal brief.

The examiner's discussion of Ayukawa and Monick et al in the second full paragraph (page 7) shows that the examiner implicitly acknowledged the mutual exclusivity of Ayukawa and Monick et al. As such, Ayukawa cannot be combined with Monick et al.

The examiner then commented on the catalyst, disclosed in Monick et al, that comprises zirconium and at least one polyelectrolyte and further on that appellant has not presented sufficient factual evidence to support appellant's argument. Appellant submits that appellant argues in the appeal brief based on the scientific definition of catalyst. There is no fact needed to support a scientific definition. If a

catalyst itself were to react, not catalyze, with phosphorus to form a flocculated mass, the catalyst would be a "reactant", not a "catalyst".

Lastly, on page 8 of the Answer, the examiner again asserted that the unexpected results presented by appellant are not commensurate with the scope of the claims. Appellant is entitled to a broad scope of claims in the absence of proper prior art.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "LK Shay", written in a cursive style.

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Dated: January 9, 2003

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